Culminating Project: Integrating Technology

Tim Lusk

Tech/507

Date 9/21/2013

Instructor: Kelly Gentry

Tip Model Lesson Plan

Phase 1: Analysis of Learning and Teaching Needs

Class consists of 19 students whose ages range from 15 to 18 years. Two students have an IEP and will need additional assistance. Additionally, three students are intermediate to advanced English Language Learners (ELL), however, experience difficulty with content vocabulary. Out of the remaining 14 students, seven are reading at grade level or above according to NWEA scores and the other seven are slightly below grade level. Using assessments and observations, I would consider six to be visual and auditory learners with the remainder being more hands-on learners.

The lesson on ecology has been presented many times over the last 11 years. Therefore, pedagogically, I feel comfortable with my knowledge of this top especially since my college minor was biology. Occasionally, I have difficulty with connecting lesson to student’s lives, in other words, making it real. However, using the current situation in Colorado with the massive floods, this possibly is the perfect scenario. The lesson will have students creating graphic organizers, using Creatley and PowerPoint presentations, which will include information from the ecology unit. Additionally, students will use web-based software, such as, Edmodo and Prezi, to present and organize other topics in ecology. My needs require more experience and knowledge when using Edmodo and Prezi, which is evolving.

Phase 2: Planning for Integration

Objectives:

Students will understand that the existence of life on Earth depends on interactions among organisms and between these organisms and their environment.

* Students will give examples of living and nonliving factors found in ecosystems and explain how these affect growth of different plant species and organisms.
* Students will explain how different organisms get the energy they need to survive.
* Students will describe how energy moves through an ecosystem.

Assessments:

* Students will use web-based graphic organizers, presentation software and collaborative web-based applications to present and display the finished product.
* Projects will be assessed with rubrics, some that need to be created in advance.
* Periodic use of formative assessments such as exit tickets and quizzes using Socrative student response system.

Integration Strategies:

* The instruction will primarily be single subject; however, writing across the curriculum is required from all teachers.
* Students will work individually (some prefer this) or may work in small groups.
* To assist those learners who need additional assistance pair with advanced skill individual.
* Students have been introduced to Socrative, Edmodo and PowerPoint. Additional time will be needed to introduce students to new technology.

Prepare Instructional Environment:

* We have enough computers in the lab for each student to use one.
* If there are hardware problems then students can form groups.
* Five to seven periods (days) will be needed to complete this chapter on Ecology.
* There will be days when computers are not available; therefore, students will have bookwork for those days.
* Students are familiar with internet rules and safety.
* Students will be required to have an USB flash drive to save work.

Phase 3: Post-Instructional Analysis and Revisions

Analyze Results:

* Students will peer review others with assigned rubric.
* Homework or independent practice will be assigned.

Make Revisions:

* Assess students using Socrative or Quia.
* Have students formulate questions for quiz game.
* Poll students: What did students like or dislike and what worked or did not.

Culminating Project-Lesson Plan 1

Compare and Contrast Biotic and Abiotic Components of an Ecosystem

Tim Lusk

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Date 9/21/2013

Instructor: Kelly Gentry

Compare and Contrast Biotic and Abiotic Factors

**Grade:** 9-10

**Common Core Standards**

**Grades 9-10** (National Governors Association Center for Best Practices, Council of Chief State School Officers, 2010)

**CCSS.ELA-Literacy**

* RST.9-10.3 Follow precisely a complex multistep procedure when carrying out experiments, taking measurements, or performing technical tasks, attending to special cases or exceptions defined in the text.
* [RST.9-10.4](http://www.corestandards.org/ELA-Literacy/RST/9-10/4/) Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to grades 9–10 texts and topics
* [RST.9-10.7](http://www.corestandards.org/ELA-Literacy/RST/9-10/7/) Translate quantitative or technical information expressed in words in a text into visual form (e.g., a table or chart) and translate information expressed visually or mathematically (e.g., in an equation) into words.

**Instructional Objectives**

Explain how biotic and abiotic factors influence an ecosystem.

Compare and contrast biotic and abiotic factors.

**Computer Functions**

The students will use “Creately” a web-based program to create a Venn diagram or a different graphic organizer to compare and contrast the two terms.

**Specify Problem**

Many problems exist in our environment from the declining populations of organisms to pollution in lakes, rivers, and the air we breathe. When studying the environment, one needs to be knowledgeable about all the factors involved and the interactions among organisms and their physical environment. The term environment refers to all conditions, or factors surrounding an organism and includes biotic and abiotic features.

**Research and Analysis**

Groups will collect information on the living and nonliving components of an ecosystem. Then analyze how these components work together to maintain ecosystems in Earth’s biosphere.

**Results Presentation**

Visuals that are able to compare and contrast will be chosen by each group. The visuals will include a list of the living and nonliving components of an ecosystem, with a definition for each category. These will be shared with the class using a presentation medium such as PowerPoint.

**Activities While at the Computer**

Students will use “Creately” to develop their graphic organizer and add this to the presentation medium. Additionally, product will be uploaded to wiki or “Prezi”.

**Activities Prior to the Computer**

Students will determine what nonliving and living factors are present in an ecosystem. Textbooks can be used for this activity. Students who are not familiar with Creately will watch a video projected from teacher’s computer.

**After Using the Computer**

Groups will take turns presenting their projects. Students will collaborate with other students and determine if certain characteristics may have been absent from presentation. Students can also be working on a summary paragraph detailing what they have learned from the lesson.

**Supporting Activities**

Writing across the curriculum is required for all classes. Therefore, students will summarize what they have experienced and learned from the lesson.

**Assessment**

An exit ticket will assess students understanding of biotic and abiotic factors in an environment.

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Culminating Project-Lesson Plan 2

Energy, Producers and Consumers Prezi Presentation

Tim Lusk

Tech/507

Date 9/21/2013

Instructor: Kelly Gentry

Prezi-How Different Organisms Get Essential Energy

**Grade:** 9-10

**Common Core Standards**

**Grades 9-10** (National Governors Association Center for Best Practices, Council of Chief State School Officers, 2010)

**CCSS.ELA-Literacy**

* RST.9-10.3 Follow precisely a complex multistep procedure when carrying out experiments, taking measurements, or performing technical tasks, attending to special cases or exceptions defined in the text.
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* [RST.9-10.7](http://www.corestandards.org/ELA-Literacy/RST/9-10/7/) Translate quantitative or technical information expressed in words in a text into visual form (e.g., a table or chart) and translate information expressed visually or mathematically (e.g., in an equation) into words.

**Computer Functions**

The students will use “Prezi” cloud based software to create a presentation.

**Specify Problem**

The existence of life on Earth depends on interactions among organisms and between organisms and their environment. Students will work in small groups to create a Prezi explaining how different organisms get the energy they need to survive. Additionally students will explain what some of the different categories of consumers are present in an ecosystem such as the Amazon rain forest.

**Research and Analysis**

Groups will collect information on primary producers and consumers then explain how the energy from producers flows to consumers. Additionally, students will show how consumers get the energy they need for life processes.

**Results Presentation**

Using web-based Prezi, students will develop a presentation that shows how producers obtain energy. Then within Prezi, students will explain heterotrophs and list examples of each type of consumer explaining how that organism obtains energy and display a graphic of each.

**Activities While at the Computer**

Students will investigate the two primary sources of energy that power living systems. Additionally, students will learn how consumers obtain energy; find examples of consumers, then compare and contrast how detritivores are different from decomposers. Groups will begin designing Prezi.

**Activities Prior to the Computer**

Students will be shown the basics of making a Prezi, and a video from YouTube will be shown using the projector connected to classroom computer.

**After Using the Computer**

Groups will take turns presenting their projects. Students will collaborate with other students and determine if certain characteristics may have been absent from presentation. Students can also be working on a summary paragraph detailing what they have learned from the lesson.

**Supporting Activities**

Writing across the curriculum is required for all classes. Therefore, will summarize what they have experienced and learned from the lesson.

**Assessment**

Quiz using Socrative clicker technology will be given after presentations are finished.

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Culminating Project-Lesson Plan 3

Cycles of Matter

Tim Lusk

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Date 9/21/2013

Instructor: Kelly Gentry

Design a Presentation of One Cycle of Matter

**Grade:** 9-10

**Common Core Standards**

**Grades 9-10** (National Governors Association Center for Best Practices, Council of Chief State School Officers, 2010)

**CCSS.ELA-Literacy**

* RST.9-10.3 Follow precisely a complex multistep procedure when carrying out experiments, taking measurements, or performing technical tasks, attending to special cases or exceptions defined in the text.
* [RST.9-10.4](http://www.corestandards.org/ELA-Literacy/RST/9-10/4/) Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to grades 9–10 texts and topics
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**Instructional Objectives**

Describe how matter cycles among the living and nonliving parts of an ecosystem.

Describe how water and other nutrients cycles through the biosphere.

Explain why nutrients are important in living systems.

**Computer Functions**

Small groups will create a presentation using the program of their choice, such as Prezi, PowerPoint, Creately, or may select another in which they are familiar.

**Specify Problem**

Design a presentation of one of the cycles of matter. The cycles are Water Cycle, Carbon Cycle, Nitrogen Cycle, and Phosphorus Cycle. Presentation will include visuals, animations or hyperlinks to YouTube or another video resource.

**Research and Analysis**

Groups will research and gather information on the cycle of their choice and begin with a preliminary diagram showing how matter moves through the system. Additionally, groups have to explain & analyze the importance of this cycle.

**Results Presentation**

Using web-based or computer based program, students will develop a presentation that shows how matter moves in endless cycles on Earth. Then with the presentation, students will explain how matter moves through the biosphere and the importance of this cycle. Additionally, student will integrate pictures and animations or other visuals.

**Activities While at the Computer**

Students will investigate how matter moves through the biosphere and discover the types of cycles present. Groups will begin designing the presentation and finding the essential elements.

**Activities Prior to the Computer**

Students will be using a textbook to discover the different cycles. Students will make their own small groups.

**After Using the Computer**

Groups will take turns presenting their projects. Students will collaborate with other students and determine if certain characteristics may have been absent from presentation. Students can also be working on a summary paragraph detailing what they have learned from the lesson.

**Supporting Activities**

Writing across the curriculum is required for all classes. Therefore, students will summarize what they have experienced and learned from the lesson.

**Assessment**

A rubric will be designed to use to evaluate the presentation.

Pre-made rubric for multimedia projects (http://www.ncsu.edu/midlink/rub.mmproj.htm).

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McCullen, C. (n.d.). *Multimedia rubric*. Retrieved from http://www.ncsu.edu/midlink/rub.mmproj.htm